

IN THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1(Currently Amended). A method of forming a QAM constellation, comprising:
arranging constellation points arranged in a non-square grid to achieve a large noise margin,
and to allow for fast convergence of blind equalization algorithms, wherein the
constellation is at least one of 8QAM constellation and 13QAM constellation.

2(Original). The QAM constellation of claim 1, wherein said points are selected to use low word widths.

3(Currently Amended). A method for improved shell mapping comprising:
providing a non-square grid QAM constellation and employing points of said constellation
in said mapping, wherein the constellation is at least one of 8QAM constellation and 13QAM
constellation..

4-12. Canceled.

13 (New). The method according to claim 1, wherein the 8QAM constellation points are selected from

$$\{0, 1, e^{2\pi j/7}, e^{4\pi j/7}, e^{6\pi j/7}, e^{8\pi j/7}, e^{10\pi j/7}, e^{12\pi j/7}\}.$$

14 (New). The method according to claim 1, wherein the 8QAM constellation points are selected from

$$\{0, 1, e^{2\pi j/6}, e^{4\pi j/6}, e^{6\pi j/6}, e^{8\pi j/6}, e^{10\pi j/6}, 1 + e^{2\pi j/6}\} - (3 + j\sqrt{3})/16.$$

15 (New). The method according to claim 1, wherein the 13QAM constellation points are selected from

$$\{0, \pm 1, e^{\pm 2\pi j/6}, e^{\pm 4\pi j/6}, \pm 1 \pm e^{2\pi j/6}, \pm \sqrt{3}\}.$$

16 (New). The method according to claim 13, wherein the 8QAM constellation points are selected from

$$\{0, 1, e^{2\pi j/7}, e^{4\pi j/7}, e^{6\pi j/7}, e^{8\pi j/7}, e^{10\pi j/7}, e^{12\pi j/7}\}.$$

17 (New). The method according to claim 13, wherein the 8QAM constellation points are selected from

$$\{0, 1, e^{2\pi j/6}, e^{4\pi j/6}, e^{6\pi j/6}, e^{8\pi j/6}, e^{10\pi j/6}, 1 + e^{2\pi j/6}\} - (3 + j\sqrt{3})/16.$$

18 (New). The method according to claim 13, wherein the 13QAM constellation points are selected from

$$\{0, \pm 1, e^{\pm 2\pi j/6}, e^{\pm 4\pi j/6}, \pm 1 \pm e^{2\pi j/6}, \pm \sqrt{3}\}.$$

19(New). The method according to claim 16, wherein the shell mapping is performed using a mapping table given by $\{-1, 15, 9 \pm 12j, -4 \pm 15j, -15 \pm 7j\}$, wherein the mapping table is implemented using 5 bits words for I and Q axis.

20(New). The method according to claim 17, wherein the shell mapping is performed using a mapping table given by $\{0, 1 \pm j, -1 \pm j, 2, -2, 3 \pm j\}$, wherein the mapping table is implemented using 3 bits for I-axis and 2 bits for Q-axis.

21(New). The method according to claim 17, wherein the shell mapping is performed using a mapping table given by $\{-8-2j, 8-2j, 4+5j, -4-9j, -4+5j, 4-9j, 12j, -2j\}$, wherein the mapping table is implemented using 5 bits words for I and Q axis.

22(New). The method according to claim 17, wherein the shell mapping is performed using a mapping table given by $\{-8-4j, -2-4j, 4-4j, 5+j, 1+j, 7+j, -2+6j, 4+6j\}$, wherein the mapping table is implemented using 4 bits words for I and Q axis.